WHAT IS CLAIMED IS:

1. A method for operating a gas turbine engine, including a first compressor, a second compressor, a combustor and a turbine, coupled together in serial flow arrangement, said method comprising:

channeling compressed airflow discharged from the first compressor to a heat exchanger having an airstream flowing therethrough;

channeling an evaporatively cooled airstream into the heat exchanger to facilitate reducing an operating temperature of the heat exchanger; and

extracting energy from the compressed airflow using the heat exchanger airstream to facilitate reducing a temperature of the compressed airflow and channeling the compressed airflow from the heat exchanger to the second compressor.

2. A method in accordance with Claim 1 further comprising channeling the heat exchanger airstream through the heat exchanger using a fan.

3. A method in accordance with Claim 1 wherein channeling an evaporatively cooled airstream into the heat exchanger comprises:

channeling an ambient airstream into the evaporative cooler;

cooling the ambient airstream in the evaporative cooler using water; and

channeling the cooled airstream through a plurality of baffles coupled to the heat exchanger to facilitate reducing an operating temperature within a portion of the heat exchanger.

4. A method in accordance with Claim 1 wherein said extracting energy from the compressed airflow using the heat exchanger airstream comprises channeling the evaporatively cooled airstream into a portion of the heat exchanger to facilitate reducing an operating temperature of a portion of the heat exchanger.

5. A method in accordance with Claim 4 wherein channeling the evaporative cooler airstream into a portion of the heat exchanger airstream comprises channeling the evaporative cooler airstream into a portion of the heat exchanger such that a temperature gradient between the compressed airflow and the heat exchanger airstream is maintained.

6. A method in accordance with Claim 1 further comprising:

channeling an ambient airflow into a first inlet of the evaporative cooler;

channeling water into a second inlet of the evaporative cooler; and

combining the ambient airflow and the water to facilitate reducing a temperature of the ambient airflow prior to channeling the cooled air into the heat exchanger airstream.

7. A method in accordance with Claim 1 wherein channeling an evaporatively cooled airstream into the heat exchanger further comprises channeling cooled air from the evaporative cooler into the heat exchanger airstream to facilitate increasing a power output of the engine.

8. A cooling system for a gas turbine engine that includes at least a first compressor, a second compressor, a combustor, and a turbine, said cooling system comprising:

a heat exchanger coupled downstream from said first compressor such that compressed discharged air from said first compressor is routed therethrough, said heat exchanger having an airstream flowing therethrough; and

an evaporative cooler coupled in flow communication with said heat exchanger, said evaporative cooler configured to channel an evaporatively cooled airstream into said heat exchanger to facilitate reducing a temperature of the compressed air channeled to the second compressor.

9. A cooling system in accordance with Claim 8 further comprising a fan coupled in flow communication with said heat exchanger, said fan directs heat exchanger airstream through said heat exchanger.

10. A cooling system in accordance with Claim 8 further comprising:

an ambient airstream channeled into said evaporative cooler; said ambient airstream cooled by water in said evaporative cooler; and

a plurality of baffles coupled to said heat exchanger, said baffles configured to receive said cooled airstream to facilitate reducing an operating temperature within a portion of said heat exchanger.

11. A cooling system in accordance with Claim 8 wherein said heat exchanger comprises a plurality of baffles in flow communication with the heat exchanger airstream, said baffles facilitate reducing an operating temperature of a portion of the heat exchanger.

12. A cooling system in accordance with Claim 8 further comprising a fan coupled in flow communication with said heat exchanger, said evaporative cooler is configured to channel cooled air into a portion of said heat exchanger airstream, said fan configured to combine the portion of the heat exchanger airstream with ambient air.

13. A cooling system in accordance with Claim 8 wherein said evaporative cooler comprises a first inlet configured to receive ambient airflow, and a second inlet configured to receive water, said evaporative cooler configured to extract energy from the water using the ambient airflow to facilitate reducing a temperature of the evaporatively cooled airstream prior to channeling the airstream into the heat exchanger airstream.

14. A cooling system in accordance with Claim 8 wherein said evaporative cooler is further configured to channel cooled air into the heat exchanger airstream to facilitate increasing a power output of said engine.

15. A gas turbine engine comprising:

a first compressor;

a second compressor downstream from said first compressor;

a turbine coupled in flow communication with said second compressor;

a heat exchanger coupled downstream from said first compressor such that compressed discharge air from said first compressor is routed therethrough, said heat exchanger having an airstream flowing therethrough to facilitate transferring heat energy from the compressed discharge air to the airstream; and

an evaporative cooler coupled in flow communication to said heat exchanger, said evaporative cooler configured to channel cooled air into said heat exchanger airstream to facilitate reducing a temperature of the compressed air channeled to the second compressor.

16. A gas turbine engine in accordance with Claim 15 further comprising a fan coupled in flow communication with said heat exchanger, said fan directs heat exchanger airstream through said heat exchanger.

17. A gas turbine engine in accordance with Claim 15 wherein said an evaporative cooler is further configured to channel the evaporatively cooled airstream into a portion of said heat exchanger such that a temperature gradient between the compressed airflow and said heat exchanger airstream is maintained.

18. A gas turbine engine in accordance with Claim 15 wherein said heat exchanger comprises a plurality of baffles coupled in flow communication with said evaporative cooler, said baffles facilitate reducing an operating temperature of a portion of the heat exchanger airstream.

19. A gas turbine engine in accordance with Claim 15 further comprising a fan coupled in flow communication with said heat exchanger, said evaporative cooler is configured to channel cooled air into a portion of said heat exchanger airstream, said fan configured to combine the portion of said heat exchanger airstream with ambient air.

20. A gas turbine engine in accordance with Claim 15 wherein said evaporative cooler comprises a first inlet configured to receive an ambient airflow therethrough, and a second inlet configured to receive water therethrough, said evaporative cooler configured to extract energy from the water using the ambient airflow to facilitate reducing an operating temperature of the evaporative cooler airstream prior to the evaporative cooler airstream being channeled into said heat exchanger airstream.